Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class \_\_\_\_\_\_\_\_

**Chapter 18-3 (Part 1) Guided Notes**

**Daily Objectives** - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Changing Ideas About Kingdoms**

- During \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_’s time, living things were classified as either \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ were organisms that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_ were \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that generally did \_\_\_\_\_\_\_\_\_\_\_\_\_ and got their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- As biologists learned more about the natural world, they realized that Linnaeus’s two kingdoms—\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—did not reflect the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ systems have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dramatically since Linnaeus’s time, and hypotheses about \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are still changing today as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- This diagram shows some of the ways in which organisms have been \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ since the 1700s.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| First Introduced | Names of Kingdoms | | | | | |
| 1700’s |  | | | | |  |
| Late 1800’s |  | | | Plantae | | Animalia |
| 1950’s |  | | Protista |  | Plantae | Animalia |
| 1990’s |  |  | Protista | Fungi | Plantae | Animalia |

**Five Kingdoms**

- At first, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ were placed in their own kingdom, named \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- Later, \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, were placed in their own kingdom, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- Scientists then realized that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lack a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ so they were placed in another new kingdom, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- \_\_\_\_\_\_\_\_\_\_\_-celled \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organisms remained in the kingdom \_\_\_\_\_\_\_\_\_\_\_\_.

- This process produced \_\_\_\_\_\_\_ kingdoms: \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Six Kingdoms**

- By the \_\_\_\_\_\_\_\_\_\_, researchers had learned that the organisms in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ were actually \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and biochemically \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ groups.

- The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ were placed in two kingdoms—\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- There are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Three Domains**

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has revealed that the two main \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ kingdoms are more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and from eukaryotes, than previously thought. So, biologists established a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- A domain is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ category than a kingdom.

- Under this system, there are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_—domain \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (corresponding to domain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_), domain \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (corresponding to kingdom \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_), and domain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (corresponding to kingdoms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and kingdom \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_).

**The Tree of All Life**

- Modern \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a rapidly changing science with the difficult goal of presenting all life on a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shows current hypotheses regarding evolutionary \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ among the taxa within the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Domain Bacteria**

- Members of the domain Bacteria are unicellular and prokaryotic. This domain corresponds to the kingdom Eubacteria.

- Their cells have thick, rigid walls that surround a cell membrane and contain a substance known as peptidoglycan.

- These bacteria are ecologically diverse, ranging from free-living soil organisms to deadly parasites.

- Some photosynthesize, while others do not.

- Some need oxygen to survive, while others are killed by oxygen.

**Domain Archaea**

- The domain Archaea corresponds to the kingdom Archaebacteria.

- Members of the domain Archaea are unicellular and prokaryotic, and they live in some extreme environments—in volcanic hot springs, brine pools, and black organic mud totally devoid of oxygen.

- Many of these bacteria can survive only in the absence of oxygen.

- Their cell walls lack peptidoglycan, and their cell membranes contain unusual lipids that are not found in any other organism.

**Domain Eukarya**

- The domain Eukarya consists of all organisms that have a nucleus.

- It comprises the four remaining kingdoms of the six-kingdom system: Protista, Fungi, Plantae, and Animalia.

**Kingdom Protista: Unicellular Eukaryotes**

- The kingdom Protista has long been viewed by biologists as a “catchall” group of eukaryotes that could not be classified as fungi, plants, or animals.

- Most protists are unicellular, but one group, the brown algae, is multicellular.

- Some protists are photosynthetic, while others are heterotrophic.

- Some display characters that resemble those of fungi, plants, or animals.

**Kingdom Fungi**

- Members of the kingdom Fungi are heterotrophs with cell walls containing chitin.

- Most fungi feed on dead or decaying organic matter.

- They secrete digestive enzymes into their food source, which break the food down into smaller molecules.

- The fungi then absorb these smaller molecules into their bodies.

- Mushrooms and other recognizable fungi are multicellular.

- Some fungi—yeasts, for example—are unicellular.

**Kingdom Plantae**

- Members of the kingdom Plantae are multicellular, have cell walls that contain cellulose, and are autotrophic.

- Autotrophic plants are able to carry on photosynthesis using chlorophyll.

- Plants are nonmotile—they cannot move from place to place.

- The entire plant kingdom is the sister group to the red algae, which are “protists.” The plant kingdom, therefore, includes the green algae along with mosses, ferns, cone-bearing plants, and flowering plants.

**Kingdom Animalia**

- Members of the kingdom Animalia are multicellular and heterotrophic.

- Animal cells do not have cell walls.

- Most animals can move about, at least for some part of their life cycle.

- There is incredible diversity within the animal kingdom, and many species of animals exist in nearly every part of the planet.